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Unexplained Critical Illness or Death Reporting – A Means to Identify Newly Emerging Infectious Disease Threats

As of December 2000, unexplained critical illness or death has become a legally notifiable condition by health care providers in Washington State. (*See* http://www.doh.wa.gov/os/policy/ *for more information*). Surveillance for unexplained critical illness or death is intended to facilitate early detection of emerging infectious pathogens as well as possible incidents of bioterrorism. For this surveillance to be successful, it is important that clinicians report unusual disease occurrences or deaths to their local health department before completing a laboratory investigation or establishing a diagnosis.

An unexplained critical illness or death meets all of the following criteria:

- Critical illness or death in a person 1 to 49 years of age
- Previously healthy patient with no preexisting medical condition[1] likely to explain the illness or death
- Hallmarks of infectious disease[2]
- Preliminary testing has not revealed a cause for illness or death.

Much of the impetus for this approach comes from the 1993 experience with Hantavirus Pulmonary Syndrome in the southwestern United States. Two patients with unusually severe respiratory illness happened to be seen by the same physician within

days of one another, leading to notification of public health officials and the subsequent rapid characterization and identification of a new syndrome and disease agent.

We cannot depend, however, on cases of new emerging infections, natural or manmade, to conveniently present to the same health care provider who will recognize the potential occult outbreak and take the initiative to contact public health. Ergo, the requirement for reporting such cases immediately in order to facilitate rapid identification of unrecognized clusters of cases of severe illness potentially caused by a common agent, particularly when seen by different physicians.

Any unexplained critical illness or death with hallmarks of infectious disease should be immediately reported to Public Health at (206) 296-4774. An epidemiologist will follow-up promptly with the reporting health care provider to define the syndrome and review the diagnostic possibilities. In other states conducting this surveillance, the most common clinical syndromes reported involved the central nervous system (meningitis, encephalitis), respiratory or cardiac systems, sepsis/multi-organ failure, and hepatic insufficency/failure. We expect approximately 120 cases per year to be reported in Washington State using the above case definition, with about one-third of the cases occurring in King County. If bioterrorism is suspected, Public Health – Seattle & King County will arrange for specialized laboratory testing and provide immediate consultation on treatment, prophylaxis, and infection control measures.

Hand, Foot and Mouth Disease (OW!) and Foot and Mouth Disease (MOO!)

Hand, foot and mouth disease (HFMD), also known as vesicular stomatitis with exanthem, is a common, usually mild illness of infants and children resulting from infection with one of the non-polio enteroviruses, most notably coxsackievirus A16. The disease is most frequent in summer and early autumn. HFMD caused by coxsackieviruses is rarely associated with CNS involvement, although cases of fatal encephalitis occurred during outbreaks of HFMD due to enterovirus 71 in Malaysia in 1997 and Taiwan in 1998.

HFMD is unrelated to foot and mouth disease (FMD) of cloven-hoofed animals including cattle, sheep, goats and swine which is currently causing a large outbreak in the United Kingdom and other European countries. Human HFMD is characterized by fever of 38°-39°C and lasting 1-2 days, vesicular sores in the mouth, and a generalized vesicular rash. The mouth lesions involve the tongue, gums, and buccal mucosa, develop 1-2 days after the onset of fever and rapidly evolve from erythematous macules to vesicles that frequently ulcerate by the time the patient is seen by a physician. The peripherally distributed skin rash involves the palms and soles and occasionally occurs more proximally on the extremities and on the buttocks and genitalia. The skin lesions consist of tender papules and clear vesicles with a surrounding zone of erythema. Cases of HFMD may have lesions of only either the mouth or extremities. Patients complain of sore throat or sore mouth and may refuse to eat. HFMD is moderately contagious and infection is spread through direct contact with nose and throat secretions or stool of infected persons. Infectivity is greatest during the first week of illness and is not transmitted to or from pets or other animals.

The skin lesions of HFMD may resemble those of herpes simplex or varicella-zoster virus. Children with chickenpox generally appear more ill and have a more extensive centrally distributed rash that spares the palms and soles. Children with herpetic gingivostomatitis also usually appear more ill and have a higher fever and cervical lymphadenopathy with lesions confined to the oral cavity and not involving the extremities. The enanthem of herpangina (also caused primarily by Group A coxsackieviruses) may resemble the lesions of HFMD but occurs more posteriorly, typically involving the fauces and soft palate.

FMD of cloven-hoofed animals is caused by over 60 strains of picornavirus and results in a serious debilitating infection in animals leading to decreased meat and milk production with resulting economic losses for meat and dairy industries. Although human cases of FMD similar to HFMD have been described, FMD is not considered a human health risk. FMD infection rarely occurs in humans, and when it does it results in mild or asymptomatic illness. Humans may, however, carry the FMD virus on their clothing, shoes, body and personal items from infected farms, and this has led to measures to prevent the introduction of FMD by persons entering the U.S. from FMD-infected countries. For **recommendations for travelers,** see http://www.cdc.gov/travel/other/fmd-europe-mar2001.htm. Additional information is available at the USDA web site on FMD: www.aphis.usda.gov/oa/fmd/index.html.

Cryptosporidia – Ask for it by name!

Cryptosporidiosis, which became a Notifiable Disease in December, 2000, is substantially underdiagnosed as a cause of diarrhea and abdominal cramping because testing for it is not included in the routine Ova & Parasite (O&P) exam. A survey of laboratories used by King County practitioners has confirmed that **testing for Cryptosporidia is only performed when specifically requested.**

More and more outbreaks of cryptosporidiosis associated with swimming pools and drinking water are being described. The elderly, young children, and immunocompromised individuals are most at risk of developing prolonged symptoms or complications. Though not widely publicized, there has been a boil water advisory in place for several years now for immunocompromised individuals living or traveling in British Columbia, Canada. Cryptosporidium is resistant to chlorine and the filtration necessary to remove it from drinking water is specialized and expensive. In King County there are water systems that do not filter for Cryptosporidia. An O&P for the diagnosis of gastrointestinal illness is not complete without requesting testing for Cryptosporidia.

Disease Reporting (area code 206)
AIDS……296-4645
Communicable Disease…296-4774
STDs……..731-3954
Tuberculosis……731-4579
24-hr Report Line……296-4782

Hotlines:
CD Hotline……296-4949
HIV/STD Hotline……..205-STDS
http://www.metrokc.gov/health

Reported Cases of Selected Diseases Seattle-King County 2001

NR= Not reportable in 2000	Cases Reported In April		Cases Reported Through April	
	2001	2000	2001	2000
AIDS	20	24	126	69
Campylobacteriosis	25	26	91	94
Cryptosporidiosis	1	NR	6	NR
Chlamydial infections	347	319	1335	1494
Enterohemorrhagic *E. coli* (non-O157)	0	NR	3	NR
***E. coli* O157: H7**	0	2	3	4
Giardiasis	9	11	45	73
Gonorrhea	112	82	509	358
***Haemophilus influenzae* B (cases <6 years of age)**	0	0	0	0
Hepatitis A	1	11	6	29
Hepatitis B (acute)	5	4	13	13
Hepatitis B (chronic)	42	NR	172	NR
Hepatitis C (acute)	2	1	5	2
Hepatitis C (chronic, confirmed/probable)	97	NR	458	NR
Hepatitis C (chronic, possible)	57	NR	186	NR
Herpes, genital	62	49	257	295
Measles	0	0	12	2
Meningococcal Disease	0	1	5	7
Mumps	0	1	0	3
Pertussis	0	23	2	71
Rubella, congenital	0	0	0	0
Rubella	0	1	0	1
Salmonellosis	11	19	68	68
Shigellosis	3	7	21	100
Syphilis, congenital	0	0	0	0
Syphilis, late	4	6	11	13
Syphilis	2	8	21	24
Tuberculosis	17	12	35	37